FIGLETOV T. S. USBIR/Engineering - Machines Card 1/1 : Pub. 70 - 8/11 Authors : Urusov, M. M.; Fink, I. G.; and Fioletov, I. S., Engineers Title : Conveyer-belt type vacuum press SM-142 Periodical : Mekh. stroi. 4, 22-24, Apr 1954 Abstract : The technical characteristics of a conveyer-belt type vacuum press SM-142, used in the manufacture of structural bricks, are described. The press, manufactured at the Krasnyy Oktyabr Plant of the Ministry of Heavy Machine Industry, was tested at one of the largest brick producing factories and the results are listed. Drawing. Institution: Submitted:		4 · · · · · · · · · · · · · · · · · · ·	· 产品的证据的证据的现在分词的证据的证据的
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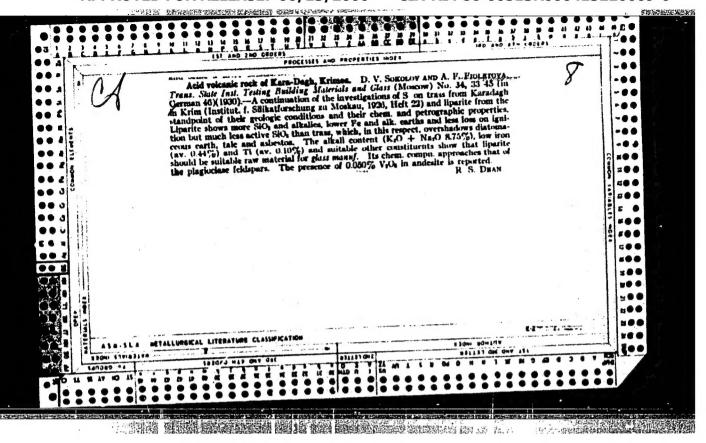
"APPROVED FOR RELEASE: 06/13/2000

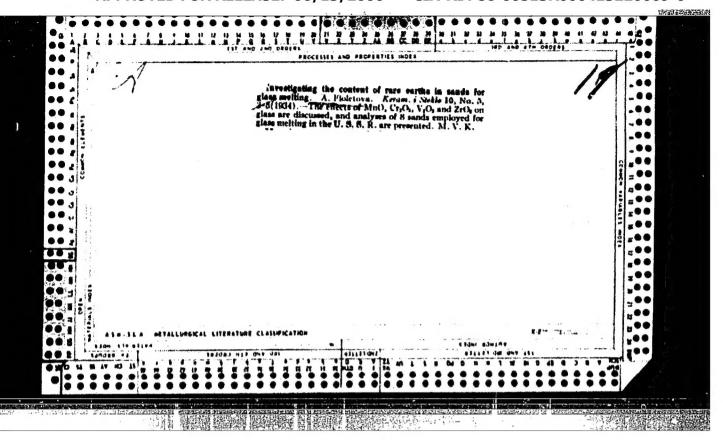
CIA-RDP86-00513R000413220009-0

UROSOV, M.M., inshener; FIOLETOV, I.S., inshener.

SM-307 automatic saw for cutting building blocks. Mekh.stroi.
11 no.8:25 Ag '54. (MLRA 7:8)

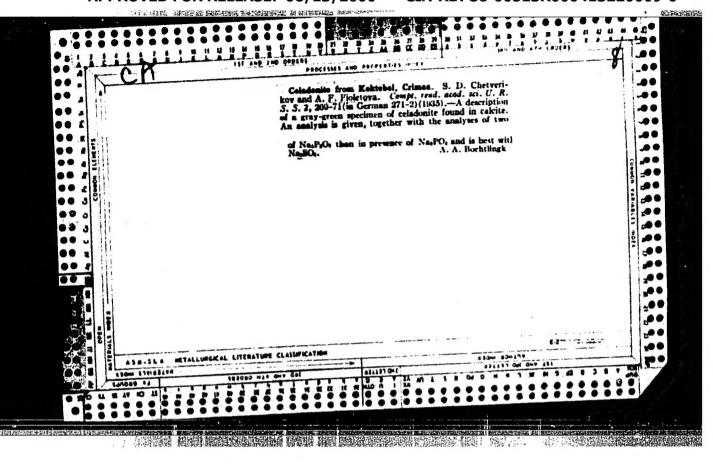
(Rotary saws) (Building blocks)

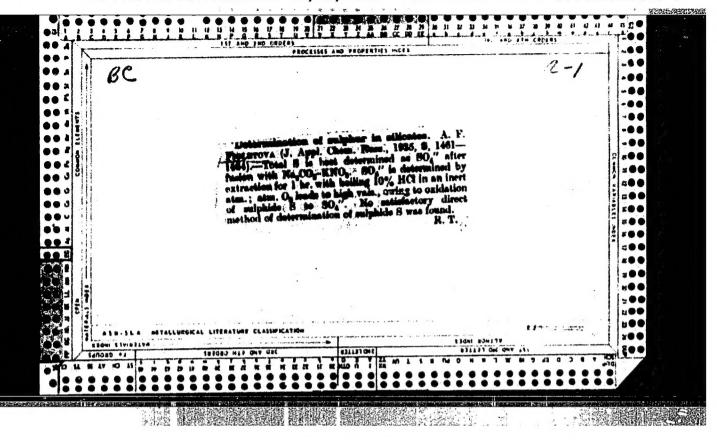


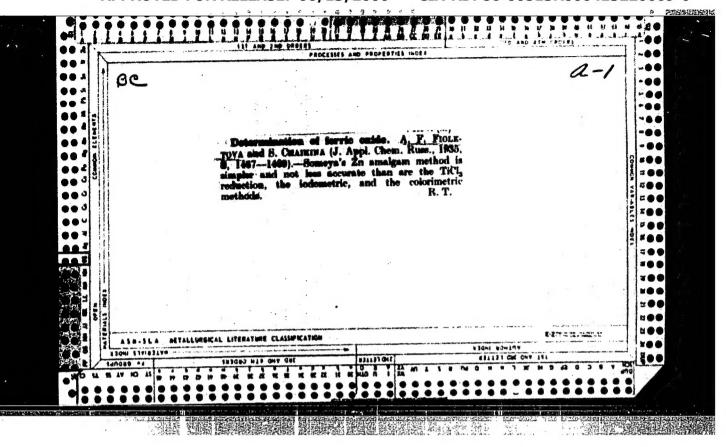


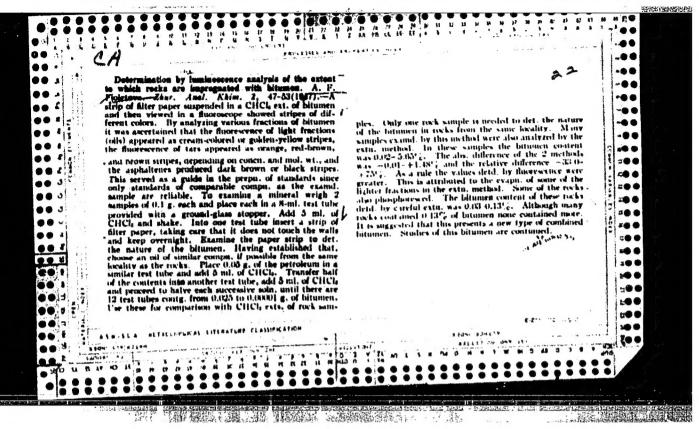
"APPROVED FOR RELEASE: 06/13/2000

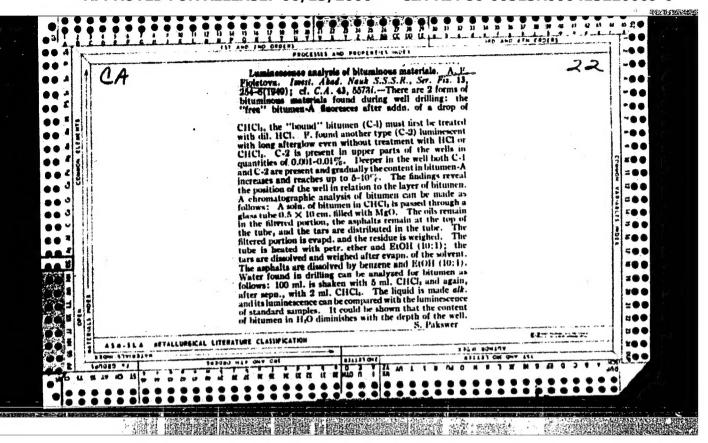
CIA-RDP86-00513R000413220009-0











FIOLETOVA, A. F.

32377 CHETVERIKOV, S. D. i FIOLETOVA, A. F. Bactvorimyy Kremiezen v Nekotoryth
Minerolath i Gornykh Powodekh. Uchen. Zepiski (Mosk. Gos. Un-t im. Loudzogova),
vyp. 142 , 1949, s. 105-12-Elbliogri 7, NAZV.

S0: Letopis' Zhurnal'nykh Statey, Vol. 44

75-6-10/23 AUTHOR: Flolietova, A. F.

of Uranium in Solutions TITLE: Renid Imminescent Determination (Ob ekspressnom luminestsentom opredelenii urana v rastvorskh).

PERIODICAL: Zhurnal Analiticheskoy Khimii, 1957, Vol. 12, Nr 6, pp. 718-719 (USSR).

A rapid determination of the luminescence of uranium by means of the ABSTRACT: fluorimeter GOIFM-12 is described here. Elements like chrome, manganese, iron, cobalt, nickel, calcium, or magnesium, bismuth or cadmium, which disturb the luminescence, are eliminated by diluting the sample intensely, or by adding uranium. A dilution is permissible provided that the uranium content amounts at least to 1, lo g/ml. If the quantity of uranium is relatively small and the quantity of disturbing elements large, urandum is added. Satisfactory reproducible results are obtained and the relative error amounts to \$\pm\$100/0.

There are 2 references.

SUBMITTED: January 28, 1957.

AVAILABLE: Library of Congress.

Fluorimeter-Applications 1. Uranium luminescence-Determination

Card 1/1

"APPROVED FOR RELEASE: 06/13/2000

CIA-RDP86-00513R000413220009-0

S/075/62/017/003/001/004

AUTHOR:

Fioletova, A. F.

1017/1217

TITLE:

Determination of small amounts of aluminium in uranium by the

luminescence method

PERIODICAL: Zhurnal analyticheskoy khimii, v. 17, no. 3, 1962, 302-304

TEXT: The method is based on the extraction of the Al-8-oxyquinolinate using chloroform. The uranium remains in the aqueous phase. The extract has a yellow green luminescence if the content is equal to 1.10^{-7} g/Al in ml. solution. The colorimetric determination based on yellow color is possible at 1.10^{-15} g per ml. and by luminescence at 1.10^{-7} g per ml. The interference of Fe, Cr and Ca is studied: Fe interferes when its content is equal to 1.10^{-5} g Fe per 10 ml. CHCl₃ solution Ca and Cr do not interfere even in concentrations of 0.01 g metal in 10 ml. solution.

The red 8-oxyquinolinate of uranium is masked in basic medium by addition of NaHCO₃ in large excess (ten-fold weight of the required amount) and boiling for 10 minutes. The luminescence shade of CHCl₃ solution of the Al 8-oxyquinolinate changes in the presence of uranium, it is necessary to add to the standard solutions, the same amounts of uranium as are contained in the sample. A series of standard solutions were tabulated and the results of 20 determinations shown in tabular form. The method permits the determination of γ quantities of Al in metals and alloys (steels) with an error of 10% (relative). At concentrations in the range from 1.10⁷⁻ to 2.10⁻⁷ g in 10 ml. solution the error varies between \pm 20-30% (relative).

Card 1/3

Determination...

S/075/62/017/003/001/004 I017/I217

The preparation of the reagent and of the standard solutions is given. The proposed method is an adaptation of that proposed by Goon and Petti (1953). The procedure: 0.1-0.2 ml. of the metal or the oxide are dissolved is a quartz crucible by heating on a water bath with addition of a few drops of HCl + HNO₃. The solution is evaporated to obtain the crystalline salt. If Fe is present in amounts 1.10^{-2} %, the sample is dissolved in 15-20 ml 6N HCl and the Fe is removed from this solution by solvent extraction using ether and KCNS. The solution is tested for Fe by addition of KCNS, the ether is completely removed, and the solution is quantitatively transferred in a 100 ml volumetric flask and diluted to the mark. An aliquot sample of the above solution containing 5.10^{-7} to $1.5 \ 10^{-6}$ g Al is evaporated to dryness in a quartz crucible and treated with 10 ml. 8% NaHCO₃ solution, by boiling for 10 min. The cooled solution is transferred in a quartz separatory funnel together with 1 ml 2% solution of 8-oxyquinoline and 5 ml CHCl₃ and vigorously shaken and extracted for 5 minutes. The second chloroform extract is mixed with the first, the volume is adjusted with chloroform and after mixing, the intensity of the luminescence is compared to those of the chloroform layers of the standards prepared by the same procedure. The comparison should be carried out 24 hours after their preparation at the latest, in a dark room, using an ultraviolet source of light $(\lambda = 365 \text{ m}\mu)$. The method gives good reproducibility. There are 2 tables.

Card 2/3

Determination...

\$/075/62/017/003/001/004 I017/I217

The amount of Al is calculated as follows:

$$%Al = \frac{v.c.W.100}{W_{1.m}}$$

= volume of the aqueous standard solution of aluminum (ml)

= concentration of Al in the aqueous standard solution (g/ml)

W = total volume of the sample (ml)

W₁ = volume of the aliquot part of the sample (ml)

m = weight of the analyzed sample.

SUBMITTED: April 26, 1961

Card 3/3

THE PROPERTY OF THE PROPERTY O 1 17537-65 ENT(m)/EPF(n)-2/EMP(t)/EMP(b) Pu-4 IJP(c)/ASD(f)-2/AFMDC/ CESSION NR: AF4042626 ASD(m)-3/ 5/0075/64/019/007/0868/0870 ASD(a)-5 JD/WW/JG AUTHOL. Fioletova, A.F. TITLE: Determining small amounts of sulfur in beryllium, zirconium. ricbium and their oxides School Shurnal analiticheskoy khimii, v. 19, no. 7, 1964, 868-870 TO IC TAGS: sulfur determination, luminescent method, quinine hydromaterice, quasine hydrochloride reagent, beryllium, zircenium, nioyili um oxide, zirconium oxide, niocium oxide, ph control, ...tometric analysis TRACT: From 1 x 10^{-7} to 1 x 10^{-5} gm. sulfur can be determined by The continuous method using quinine hydrochloride C. h. 1. C. HCl. 2H2O, the C. H. L. C. HCl. 2H2O, the C. H. L. C. HCl. 2H2O, the C. H. L. C. HCl. 2H2O, the constant of the has a trightly the feet in the color viole, light whose brightness depends on je. I is work was That to letermine a suitable pH to be used in the analyses with tion and The sulfur in Be, BeO, Zr, ZrO2, Nb or Nb;O5 was oxidized with H2O, or HNO3; the samples were then dissolved in HO1, the solution, evaporated and the residues dissolved in filtre hydrochmoric

L 17537-65

ACCESSION NR: AP40426.26

acid to make up 50 ml of solution pH 3-3.5. O.1 ml of the quinine hydrochacride reagent (1 gm dissolved in 30 ml water; . ml of this that to loveml) was added and solutions were compared with standard solutions in attraviolet light at 365 millimication. I the case of th

ASSOCIATION: None

SUBMITTED: 04Jul63

ENCL: 00

SUB CODE: GC

NR REF SOV: 002

OTHER: 005

Card 2/2

"APPROVED FOR RELEASE: 06/13/2000

CIA-RDP86-00513R000413220009-0

FIOLIC, M. SUNTAME (In cape); Civen Names

Country: Yugoslavia

Academic Degrees: /not given /

Affiliation: Inot given J

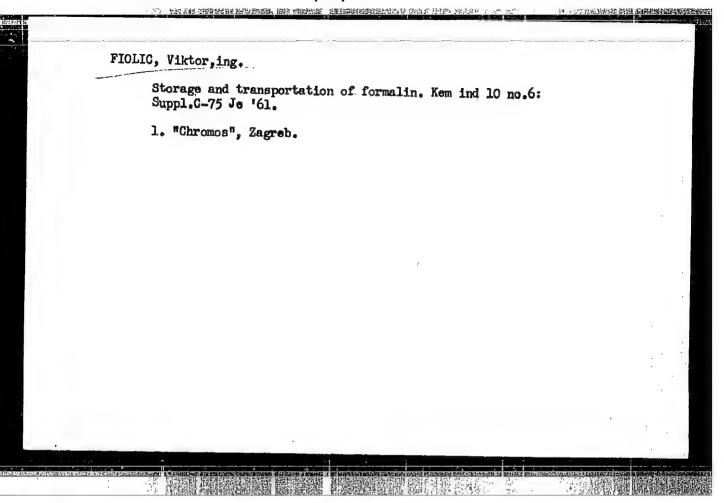
Source: Belgrade, Veterinarski glasnik, No 6, 1961, pp 443-454.

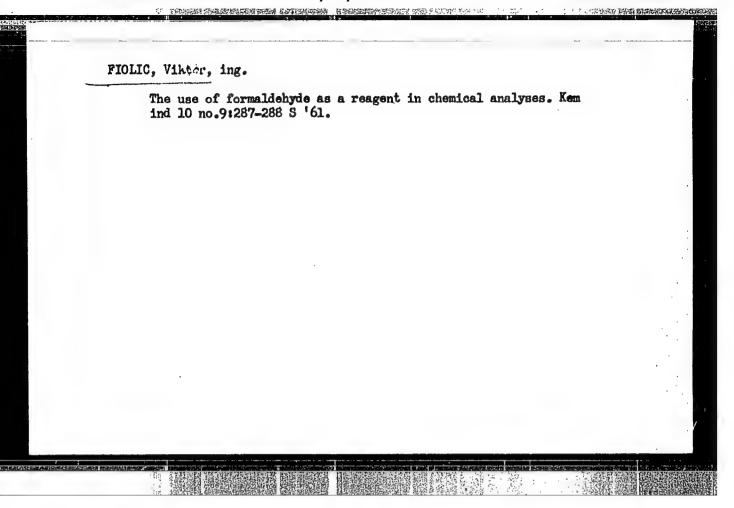
Data: "On the Further Development of Veterinary Sevice in Yugoslavia."

FIOLIC, Viktor, ing.

Review of a two-year trial campaign aginst Otiorrhynchus alutaceous a. vittatus. Kem ind 10 no.4; Suppl.C- 49-51 Ap '61.

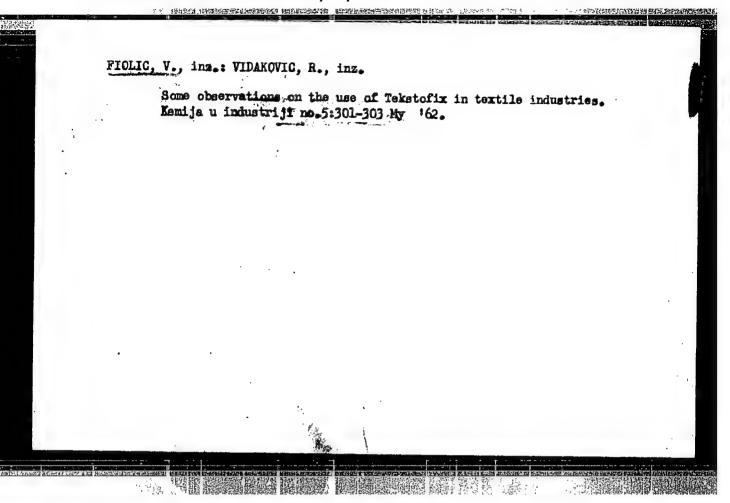
1. "Chromos", Zagre.





FIOLIC, Viktor, inz.

Reaction of formaldehyde with aliphatic hydroxy compounds. Kemija u industriji 11 no.2:77-81 '62.



"APPROVED FOR RELEASE: 06/13/2000 CIA-I

CIA-RDP86-00513R000413220009-0

Y/002/62/000/012/003/003 D267/D307

AUTHOR:

Fiolić, V., Engineer

TITLE:

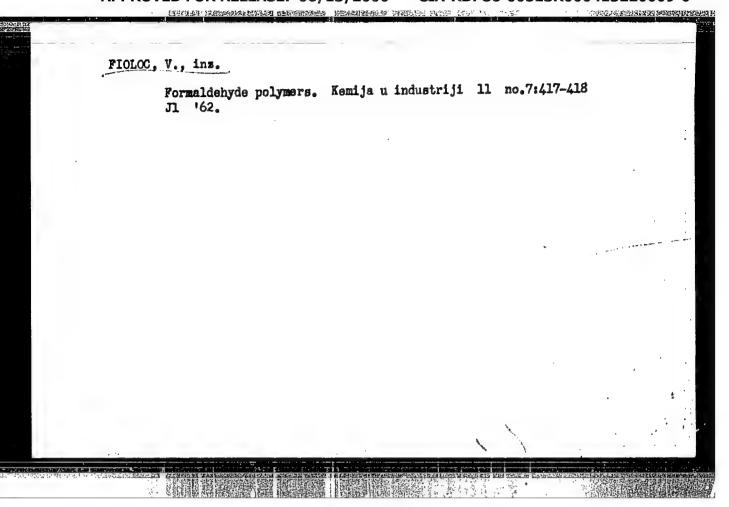
Carbamide-formaldehyde synthetic adhesives

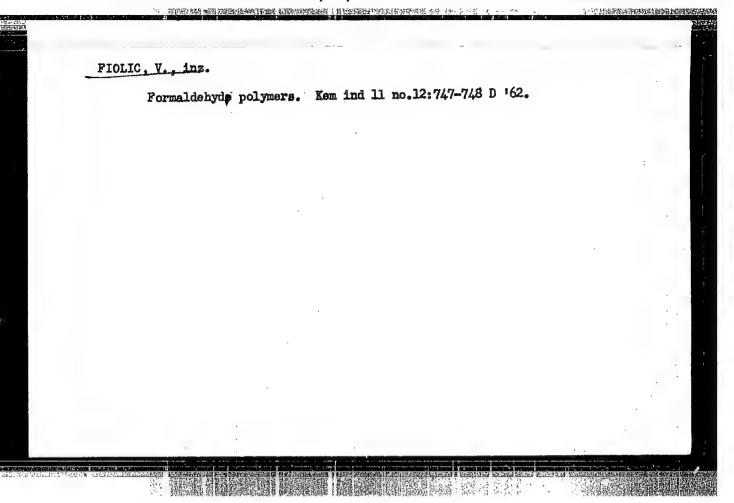
PERIODICAL:

Kemija u industriji, no. 12, 1962, 739-743

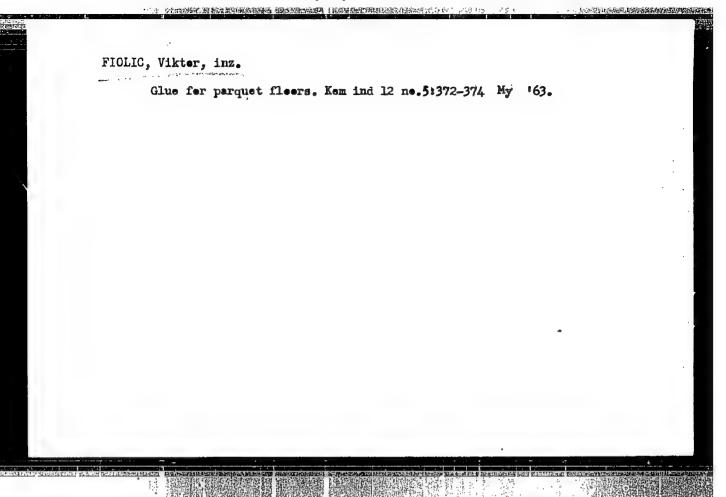
TEXT: After discussing the physical and chemical processes which take place when these adhesives are used for the glueing of wood, and the effects of moisture content, pressure, temperature and catalysts, the author describes the experimental determination of the gelation time of two adhesives, and the shear strength determination (German Standard DIN 53,253 and British Standard BS 1203). In the last part the author discusses the ageing of the adhesives (storage life, measurement of viscosity). Other important properties of the adhesives are miscibility with water, percentage of free formaldehyde, and pH of the adhesive.

Card 1/1





APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000413220009-0"



FIOLIC, V., inz.; VIDAKOVIC, R., inz.

Problem of freeing plywood sheets from formaldehyde.

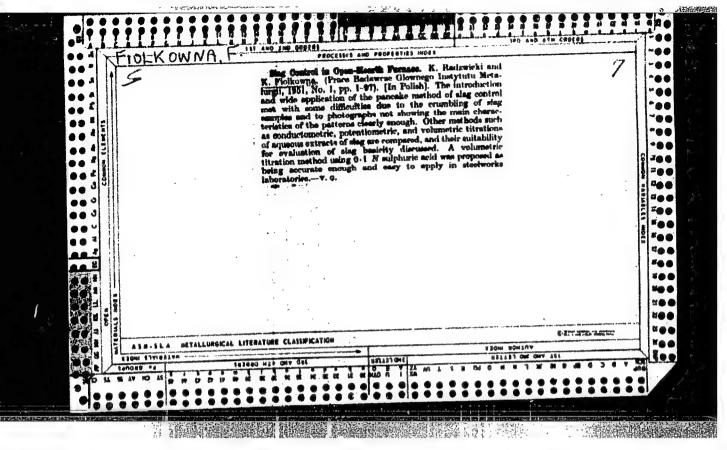
Kem ind 13 no. 2: 125-128 F 164.

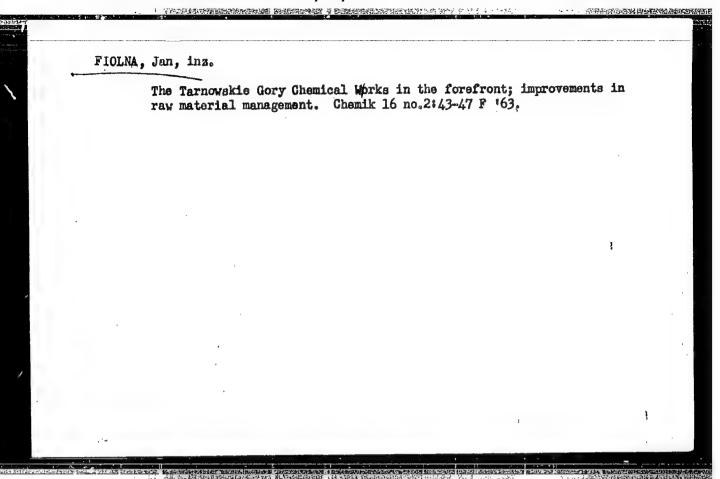
FIOLIC, Viktor, inz.

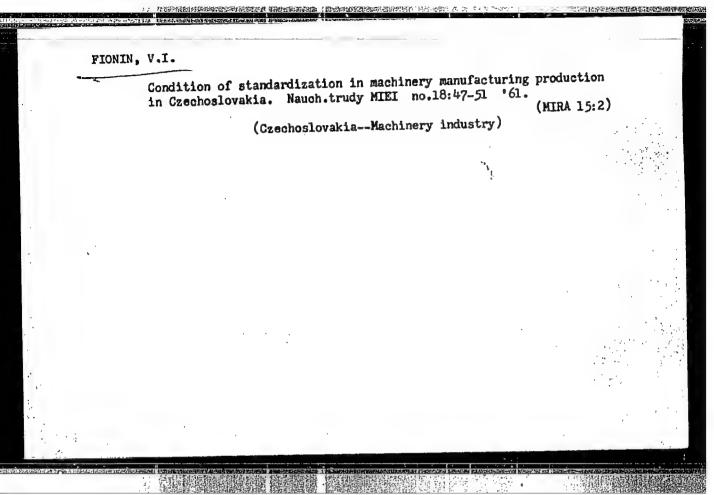
A synthetic adhesive for gluing with high-frequency apparatus. Kem ind 13 no. 7:528-530 Jl 164.

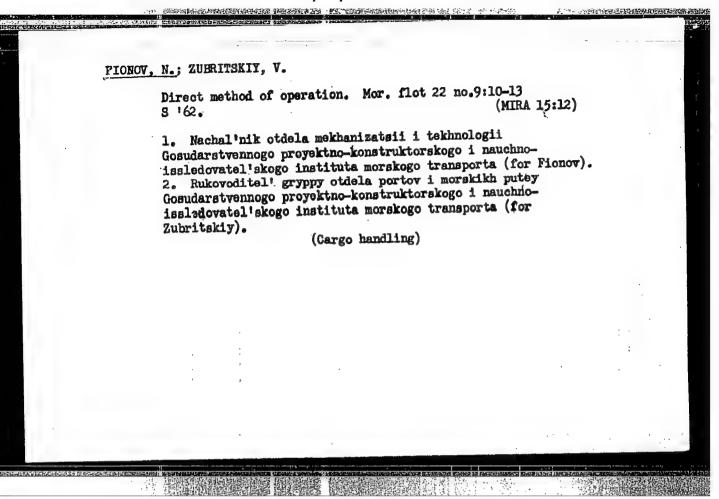
Problem of fillers in synthetic adhesives. Ibid.:530-532

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000413220009-0"





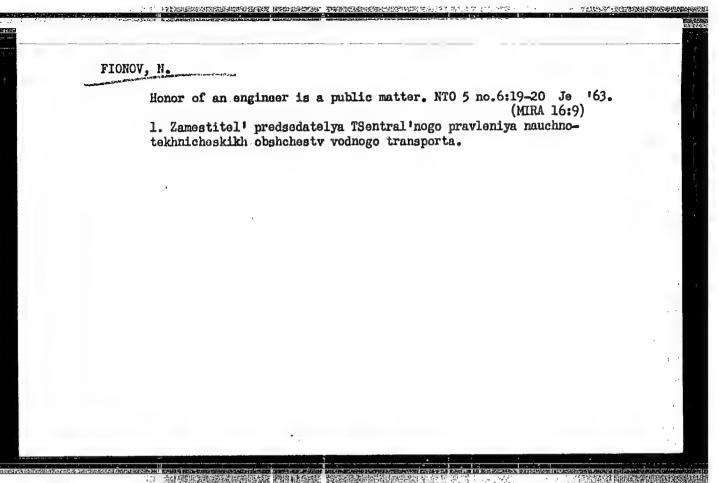




VEDEKHIN, A.F.; DWORKIN, I.L.; FIONOV, A.I.

Instrument for the neutron logging of flowing oil wells. Geol. i geofiz. no.5:48-50 '64. (MIRA 17:9)

1. Volgo-Ural'skiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta geofizicheskikh metodov razvedki.



1. Nachal inik otdala makhanizatsii Gosudarstvennogo prov			
konstruktorskogo i nauchno-issledovateliskogo instituta i transporta.	1. Nachal'nik otdela mekhanizatsii Gosudarstvennogo proyektno- konstruktorskogo i nauchno-issledovatel'skogo instituta morskogo transporta. (Loading and unloading—Equipment and supplies)		
	,		

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MARTIMOSOV, Dekomed Yomel'ganovich; FIONOV, N.I., nauchn. red.

[Organization of cargo-handling operations in sea ports]

Organizatelia gruzzyykh rabot v morskom portu. Moskva,

Transport, 1965. 149 p.

(MIRA 18:11)

ZUERITSKIY, Vladimir Ivanovich; SAKHAROV, Sergey Mikhaylovich;
FIGNOV, Nikolay Ivanovich; SKOBELING, L.V., red.

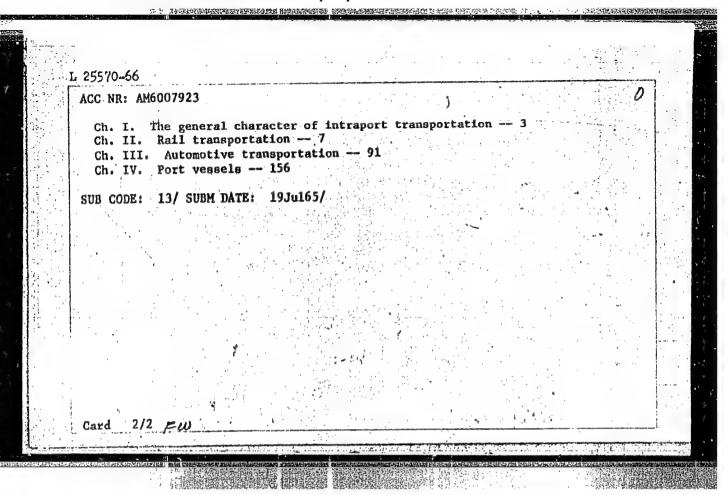
[Transportation within a port] Vnutripertovyi transport.
Moskva, Transport, 1965. 165 p. (MIRA 18:10)

"APPROVED FOR RELEASE: 06/13/2000

CIA-RDP86-00513R000413220009-0

EWT(d)/EWP(h)/EWP(1) L 25570-66 Monograph ACC NR: AM6007923 Zubritskiy, Vladimir Ivanovich; Sakharov, Sergey Mikhaylovich; Fionov, Nikolay Ivanovich Transportation within a port (Vnutriportovyy transport) Moscow, Izd-vo "Transport," 1965. 165 p. illus. Errata slip inserted. 1500 copies printed. TOPIC TAGS: marine engineering, railway engineering, highway engineering, railway transportation, ship, port PURPOSE AND COVERAGE: This book is intended for students in mechanization, operations, and hydraulic-engineering specialities in higher educational institutions of the Ministry of the Merchant Marine; it may also be used by port and planning organization personnel in the merchant marine. Problems relating to the design, construction, and operation of rail lines in port areas, and short-distance access rail lines connecting ports to trunk lines and industrial complexes are reviewed. The planning and construction of port facilities, sorting facilities, sorting yards, motor transport access roads, and roads connecting various port areas are also discussed. TABLE OF CONTENTS: [abridged]:

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MIGHETCH, Constantin Constantin SURFAME (if caps); Given Names

Country: Rumania

Acudemic Degrees: Engineer

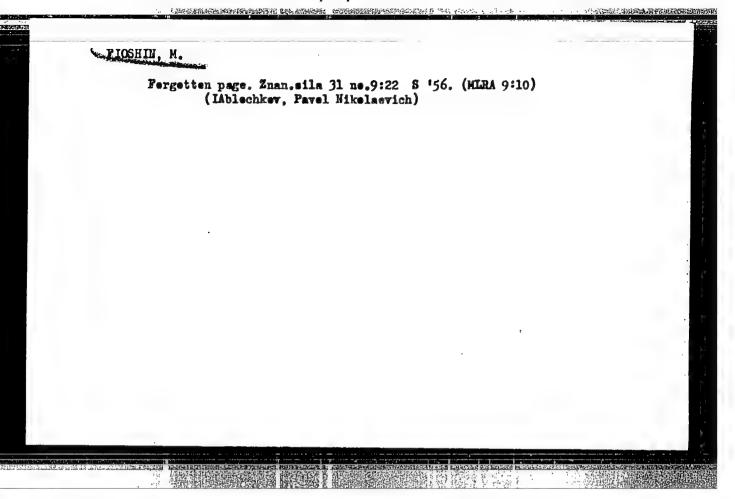
Affiliation: Research Institute for the Cultivation of Corn (I.C.C.P. Institutul de Cercetari pentru Cultura Parumbului), Fundulea.

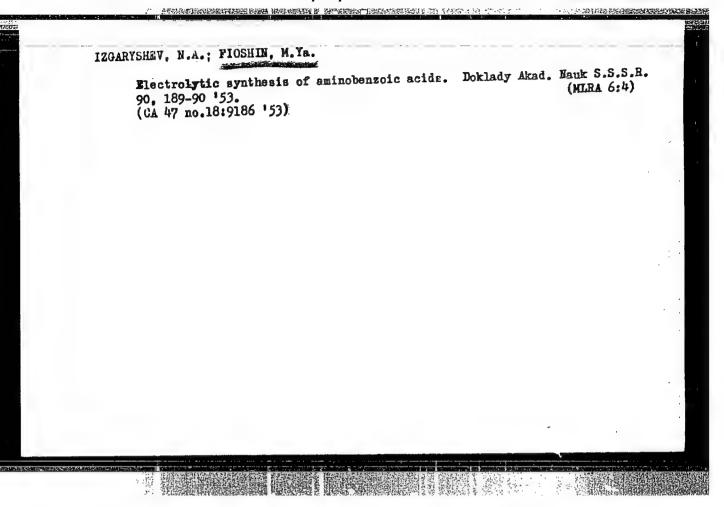
Source: Bucharost, Stiinta si Tehnica, No 4, 1961, pp 26-27.

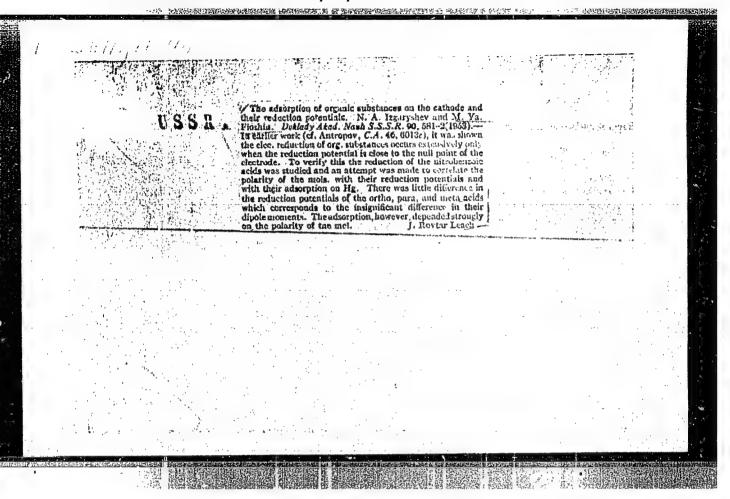
Data: "The Drying and Sorting of Corn Hybride Seeds."

Co-author:

SARCA, Vasilichia, Engineer, Research Institute for the Cultivation of Corn, Fundules.







"APPROVED FOR RELEASE: 06/13/2000 CONTROL OF STREET WOLLD STREET

CIA-RDP86-00513R000413220009-0

FIOSHIK, M USSR/Chemistry - Organic electrochemistry FD-371

Card 1/1

Pub.50 - 4/24

Author

: Khomyakov, V. G., Cand Tech Sci; Tomilov, A. P.; Fioshin, M. Ya.,

Cand Tech Sci.

Title

Some prospects of the industrial application of the electrosynthesis

of organic substances

Periodical

Khim. prom., No 6, 339-340 (19-20), Sep 1954

Abstract

: Review some USSR and foreign work on the production of various organic chemicals by electrochemical methods. State that the electrochemical method is superior to purely chemical methods of industrial synthesis from the standpoint of the area occupied by the equipment and the purity of the products obtained, that the capacity of electrochemical equipment can be increased, and that the cost of power cannot be regarded as an obstacle to the application of electrochemical procedures. Advocate that research leading to the industrial application of electrochemical methods be conducted at special laboratories attached to institutes of the Academy of Sciences USSR, the Ministry of Chemical Industry, and other ministries. Twenty four references, 17 USSR, 8 since 1940.

Institution :

Moscow Order of Lenin Chemicotechnological Institute imeni D. I. Mendeleyev.

Submitted

FIOSHIN, M. YA. USSR/Chemistry

Card 1/1

Authors

Izgaryshev, N. A.; and Fioshin, M. Ya.

Title

Condition of the cathode surface and its role in processes of electro-reduction of aromatic nitro-compounds

Periodical

Zhur. Ob. Khim. 24, Ed. 5, 766 - 775, May 1954

Abstract

The authors investigated the process of electro-reduction of nitro-benzoic and amino-benzoic acids over tin, lead; copper, graphite and amalgamated zinc cathodes. It was established that the condition of the cathode surface plays an essential role in the process of electro-reduction of nitrobenzoic acids. Maximum yields of amino-benzoic acids were obtained in the case when a lead or copper spongy mass was formed on the copper, lead or graphite cathodes. It can be assumed that the electro-reduction of nitrobenzoic acids on these cathodes has a catalytic nature. The process of electro-reduction of aromatic nitro-compounds is apparently the primary electrode act. Twenty-two references; I German since 1896. Tables.

Institution

The D. I. Mendeleyev Chemical-Technological Institute, Moscow,

Submitted

September 19, 1953

USSR/Physical Chemistry - Electrochemistry

B-12

Abs Jour

: Referat Zhur - Khimiya, No 2, 1957, 3953

Author

: Fioshin M.Ya., Ivanova L.N., Izgaryshev N.A. : Academy of Sciences USSR

Inst

Title

: Change in Potential of Hydrogen Evolution at a Nickel

Electrode in the Presence of Certain Additions

Orig Pub

: Dokl. AN SSSR, 1955, 100, No 2, 311-314

Abstract

Study of the effect of addition of aniline (I), p-toluidine, o-chloraniline, diphenylamine, methylamine (II) and (NH4)2SO4 (III) on the potential of hydrogen evolution (\mathcal{E}_H) in 1 N $\rm H_2SO_h$. Use was made of a cathode of Ni electrolytically deposited on Pt, and also of a spongy Ni cathode. It is shown that in the presence of most of the additions at a concentration of 1 . 10-3 M there takes place a shift of $\xi_{\,\,H}$ to the positive side, which can be explained by participation of ions of RNH3 -type in the electrochemical reaction at the

Card 1/3

- 195 -

USSR/Physical Chemistry - Electrochemistry

B-12

Abs Jour : Referat Zhur - Khimiya, No 2, 1957, 3953

作品的特别的基础的现在分词的 1 可采用的电影系统的

cathode (RZhKhin, 1954, 17866). Nature of change in $\mathcal{E}_{\rm H}$ in the presence of II and III depends on the concentration of these additions; thus on a change in the concentration of II and III, from 0.1 to 1 M, $\mathcal{E}_{\rm H}$ is shifted appreciably toward the negative side, which is probably associated with the appearance, in the couble layer, of free molecules of II or NH₃. It is assumed that several adsorption layers are present at the cathode; the first layer consists of free molecules of II or NH₃, the next layers of RNH₃⁺ or NH₁⁺ ions. Presence of dense ionic layers hampers the penetration of H⁺ ions to the surface of the cathode and results in a shift of $\mathcal{E}_{\rm H}$, the magnitude of which depends upon the strength of added amines, which are bases. It was found that in the case of a spongy Ni cathode, the capacity of amines to lower $\mathcal{E}_{\rm H}$ does not become manifest (except for I), even at low cocentrations of the additions.

Card 2/3

- 196 -

USSR/Physical Chemistry - Electrochemistry

B-12

Abs Jour

: Referat Zhur - Khimiya, No 2, 1957, 3953

The correlation between $\mathcal{E}_{\mathbf{R}}$ and \mathbf{lg} 1, is expressed by straight lines having different angles of inclination.

Card 3/3

- 197 -

(MLRA 9:2)

FIOSHIN, M.Ya.; BABIYEVSKIY, K.K.; IZGARYSHEV, N.A.

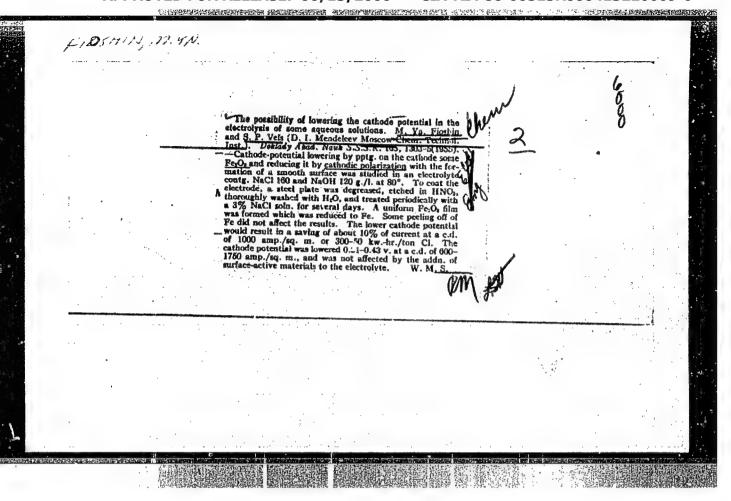
Electrolytic synthesis of mothyl anthranilate. Dekl.AN SSSR

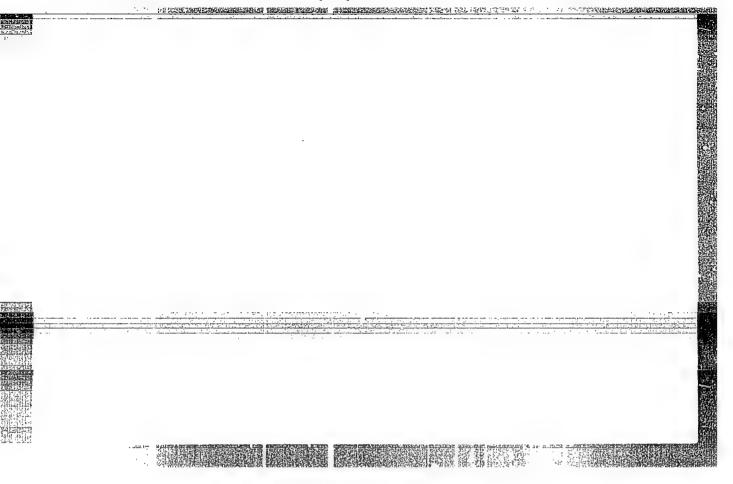
1.Chlen-kerrespendent AN SSSR (for Izgaryshev).
(Anthranilic acid)

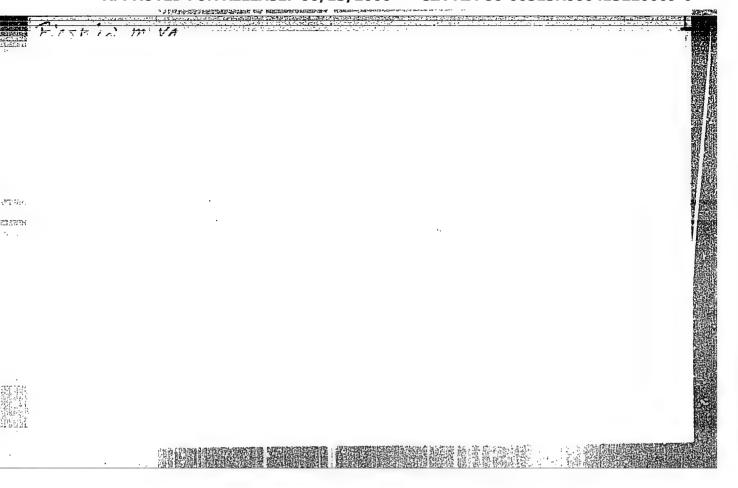
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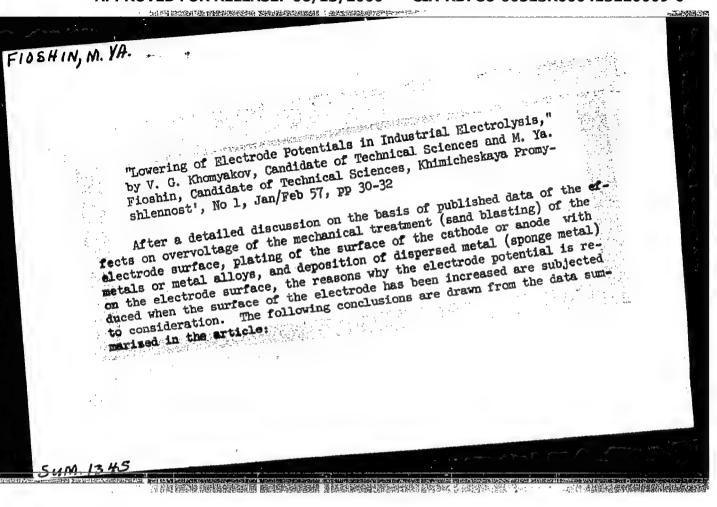
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CIA-RDP86-00513R000413220009-0









FIDSHIN, M. YA

"Experiments conducted by many investigators show that the potentials at which hydrogen and oxygen evolve in the electrolysis of water and the potential at which hydrogen evolves in the electrolysis of chlorides can be considerably lowered if the overvoltage is reduced by mechanical, chemical, or electrochemical treatment of the surface of the electrode in such a manner that this surface is increased. The lowering of potential achieved by this means generally amounts to 0.2-0.4 volt, which results in a considerable savings of electrical power (10-15% in the electrolysis of water and 5-10% in the electrolysis of sodium chloride). The best method of lowering the potentials of the evolution of hydrogen and oxygen in electrolysis comprise deposition of iron or nickel sponge on the surface of the electrode or coating the electrode with an alloy consisting of Ni and S. Extensive research must be done with the view of developing new electrode coatings which will reduce the overvoltage connected with the evolution of hydrogen and oxygen, will keep the potential constant in time in the presence of different impurities, and may be expected to exhibit sufficient corrosion resistance during the operation of industrial electrolysis cells."

The bibilography appended to the article lists 13 USSR references, 8 references to work done in Japan by K. Kanzaki, one us reference, and one Swiss reference. (U)

Sun 18 49

F105hin, M, Ya

AUTHORS:

Gus'kov, V.A., Fioshin, M.Ya.

76-11-29/35

TITLE:

A Method for Folarization Measurements in Solutions of Low Electric Conductivity (Metodika polyarizatsionnykh izmereniy v slabo elektroprovodnykh rastvorakh)

PERIODICAL:

Zhurnal Fizicheskoy Khimii, 1957, Vol. 31, Nr 11, pp. 2575-2577 (USSR)

ABSTRACT:

On the basis of an example concerning solutions in glacial acetic acid a method for measuring polarization is described. A system consisting of an ordinary potentiometer \mathcal{H} - l_t and an amplification attachment \mathcal{H} \mathcal{H} -2 is used. When recording polarization curves the authors met with difficulties: While the motor of the thermostat stirring device, or when connecting various resistances to the polarization circuit, the capacity of the casing changed although it always had the same potential when measured. Therefore the amplifier casing must, above all, be very carefully earthed. Besides, the line from the calomel-semi-element must be carefully screened. The latter must in all cases be connected with the network. There is 1 figure.

Card 1/2

76-11-29/35

A Method for Polarization Measurements, in Solutions of Low Electric Conductivity

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ASSOCIATION: Moscow Chemical-Technological Institute imeni D.I.Mendeleyev (Khimiko-tekhnologicheskiy institut im. D.I.Mendeleyeva, Moskva)

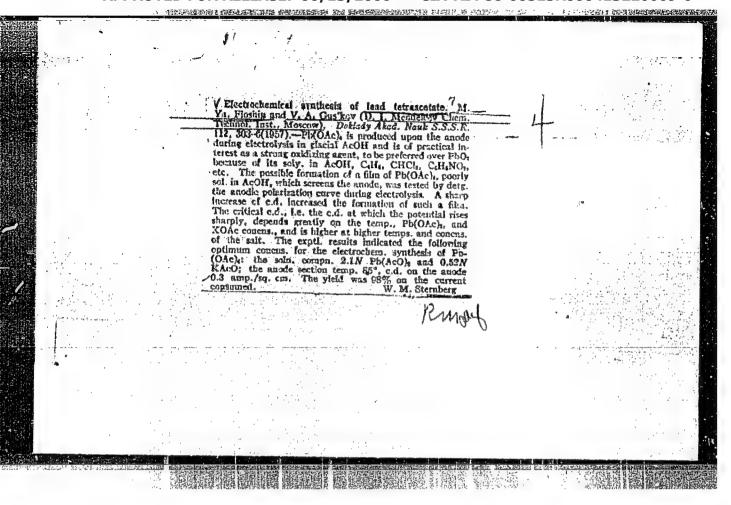
SUBMITTED: November 6, 1956

AVAILABLE: Library of Congress

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"APPROVED FOR RELEASE: 06/13/2000

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AUTHORS: Fioshin, M. Ya., Popova, Ye. S., Tomilov, A. P.

SOY/ 156 58-3-33/52

TITLE:

The Electrolysis of Potassium Bifluoride Solution in Anhydrous Acetic Acid (Elektroliz rastvora biftorida kaliya v bezvodnoy

ukausnoy kislote)

PERIODICAL:

Nauchnyye doklady vysshey shkoly, Khimiya i khimicheskaya

tekhnologiya, 1958, Nr 3, pp. 533 - 535 (USSR)

ABSTRACT:

The products of the electrolysis of potassium bifluoride in anhydrous acetic acid solution with an insoluble anode were investigated. The electrolysis was carried out in cells without a diaphragm to separate the anodic from the cathodic space. The results obtained showed that a change in the current density from 0,01 to 0,1 A/cm² as well as an increase in temperature from 20 to 70°C do not influence the character of the electrolytic process. The results obtained showed that at the cathode hydrogen is formed in quantity according to

is formed in quantity according to Faraday's Law. Ethane,

acetylfluoride and CO₂ occur in addition to hydrogen as the gaseous products formed in the electrolysis. Besides acetic acid methylacetate was also found in the liquid products formed in the

Card 1/2

The Electrolysis of Potassium Bifluoride Solution in SOV/15658-3-33/52 Anhydrous Acetic Acid

electrolysis. 90% of the current was consumed at the platinum electrode for the formation of ethane and CO₂ according to the Kolbe reaction. The rest served for the destruction of the anode and for the formation of methylalcohol according to the Hofer-Moest reaction. There are 1 table and 5 references, 0 of which is Soviet.

ASSOCIATION:

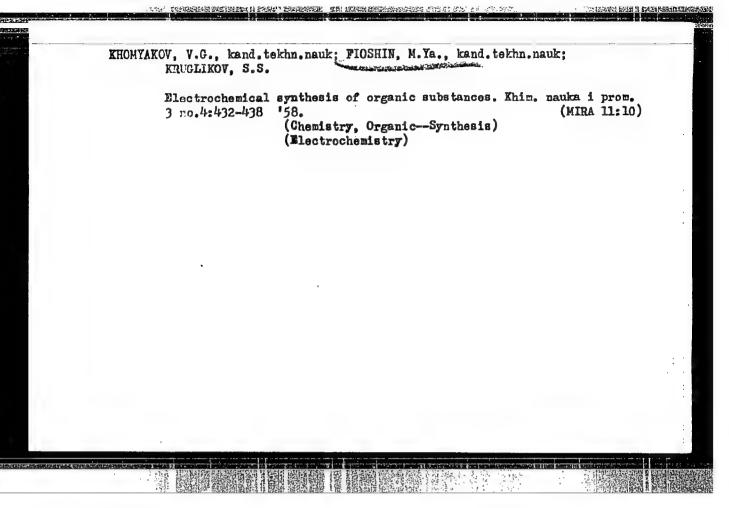
Kafedra tekhnologii elektrokhimicheskikh proizvodstv Moskovskogo khimiko-tekhnologicheskogo instituta im.D.I. Mendeleyeva (Chair for the Technology of Electrochemical Products of the Moscow Chemical and Technological Institute imeni D.I. Mendeleyev)

SUBMITTED:

September 26, 1957

11、次发生的特殊的 植物医红斑 医原皮虫虫 经发现的过程 医原 医抗抗病患症毒素

Card 2/2



SOV/64-58-6-4/15

AUTHORS: -

Khomyakov, V. G., Candidate of Technical Sciences, Fioshin,

M. Ya., Candidate of Technical Sciences

TITLE:

Electrochemical Methods for the Synthesis of Hydroxylanine (Elektrokhinicheskiye sposoby sintema gidroksilamina)

PERIODICAL:

Khimicheskaya promyshlennost!, 1958, Nr 6, pp 335-340 (USSR)

ABSTRACT:

The development of the production of caprolactam, which is the raw material of the synthetic fiber "Kapron", has in recent years stimulated interest in the synthesis of hydroxylamine, which is also used in the synthesis of such products as dimethyl glyoxime and isonitroso acetanilide. There are three methods of industrial production of hydroxylamine: 1) the method suggested first by Raschig (Rashig) (Ref 4), 2) the method commonly used in the United States by which nitro compounds of the aliphatic series are treated with concentrated solutions of mineral acids, and 3) the synthesis which consists of an electroreduction of nitric acid, nitrates, or nitrites. As far as the latter method is concerned, the references in question stress the technical importance of this process, but no further details are given. In connection

Card 1/2

CIA-RDP86-00513R000413220009-0" APPROVED FOR RELEASE: 06/13/2000

507/64-58-6-4/15 Electrochemical Methods for the Synthesis of Hydroxylamine

with the electroreduction of nitric acid the data given by Acworth and Armstrong (Akvort, Armstrong) (Ref 11) are mentioned. The first product of the reduction of nitric acid is mitrous acid which, according to Sihvonen (Sivonen) (Ref 12), forms a hypothetical bivalent acid with nitric acid. Furthermore, the formation of nitric oxide, hyponitrous acid, nitrogen suboxide, nitrogen and ammonia is discussed, and the conditions for a profitable production of hydroxylamine defined. In the discussion of the composition of the electrolyte, of the material of electrodes, of current density and temperature there are mentioned, among other things, data given by Tscherbakov and Libina (Shcherbakov and Libina) (Ref 17), Tafel (Ref 24), and Lazzari (Ref 26). In connection with the data used for the comparison of the chemical and electrochemical synthesis of hydroxylamine current prices of the Krasmoraskaya GES and the power plants of the Angarsk Waterfalls are given. A number of advantages of the electrochemical method are enumerated. There are 3 tables and 39 references, 3 of which are Soviet.

Card 2/2

SOV/79-28-8-1/66 Fioshin, ". Ya., Kazakova, L. I. ANTHORS: Synthesis of Lead Tetraacetate, Pb(CH2COO)4, by Electrochemical Oxidation of Lead Acetate at the Anode (Sintez tetraatsetata TITLE: svintsa elektrokhimicheskim okisleniyem diatsetata svintsa na anode) Zhurnal obshchey khimii, 1958, Vol. 28, Nr 8, pp. 2005-2007 PERIODICAL: (USSR) The chemical synthesis of lead tetraacetate, which is a strong oxidizing reagent (Ref 1), is carried out by reacting red ABSTRACT: lead with glacial acetic acid (Ref 2). In this reaction only one third of the lead is used up. Two thirds of the lead is reacted when chlorine is added to the reaction mixture, but the removal of the remaining lead chloride is difficult. After purification and separation processes the final result in this case is a 40-50 ; yield. Of the many attempts to carry out the synthesis electrochemically only the work of Schall and Melzer (Ref 4) (Shall', Mel'tser) can be cited as successful. In this method lead diacetate is oxidized at the platinum anode in glacial acetic acid (1-2 % water) which contains sodium acetate, and a yield of 80 1 lead tetraucetate results. Card 1/3

sev/79-28-3-1/66

Synthesis of Lead Tetraccetate, Pb(CH₃COO)₄, by Electrochemical Oxidation of Lead Acetate at the Anode

This yield decreases to 26 ! after 30 minutes, however, and then gradually decreases to practically nothing. It had previously been shown that the cause of this decomposition was the formation of a film of lead tetraacetate on the anode, thus hindering the reaction. Schall and Melzer evoided high temperatures where the tetrascetate would be decomposed by the water (1-2%) present in the acetic acid. In previous work by the authors (Pef 5) an electrolysis was carried out in dehydrated glacial acetic acid containing potassium acetate at 85° in order to dissolve the tetraccetate film. This work indicated the possibilities of converting lead diacetate into lead tetraccetate by electro-oxidation. In the present paper is given for the first time a method for synthesizing lead tetraccetate by electrochemical oxidation of the lead discetate. at the platinum enode as well as at the lead peroxide anode. The details of this synthetic process are given in the experimental section. There are 1 figure and 6 references, 3 of which are Soviet.

Card 2/3

Synthesis of Lead Tetrageetate, Fb(CH3COC)4, by Cleatrochemical Ogid Lion of Lead Acetate at the Anode

ASSOCIATION: Moskovskiy knimiko-tekhnologichoukay institut imeni D. I.

Mendelayeva

(Moscow Chemical Technology Institute imeni D. A. Handeleyev)

SUBMITTED: Jaly 6, 1957

Card 5/5

SOV/64-59-4-4/27 Khomyakov, V. G., Fioshin, M. Ya., Tomilov, A. P. 5(1) 5(2) AUTHORS: Electrochemical Methods of the Synthesis of Some Initial Materials for High Polymers (Elektrokhimicheskiye metody sin-TITLE: teza nekotorykh iskhodnykh materialov dlya vysokopolimerov) Khimicheskaya promyshlennost', 1959, Nr 4, pp 16 - 20 (USSR) PERIODICAL: Some examples of applying electrolytical methods for the production of polymers are given and discussed. Manufacturing ABSTRACT: methods of raw materials being important for the production of polyamide resins, as for example hexamethylene diamine or adipinic acid dinitrile and dibasic dicarboxylic acids, among them mainly sebacic acid, are discussed. Also the production of organofluorine compounds by electrochemical fluorination of the dissolved organic substances or carbon chlorides are discussed. The electrosyntheses of pinacon being important for the production of some types of rubber is also described. It is pointed to the fact that the theoretically interesting electrochemical initiation of the polymerisation reaction will also be of practical importance. These reactions, however, are not yet sufficiently investigated and further investigations have Card 1/2

Electrochemical Methods of the Synthesis of Some SOV/64-59-4-4/27 Initial Materials for High Polymers

to be carried through. By means of the electrochemical initiation of the methyl methacrylate polymerisation the course of the polymerisation initiation is represented according to data by G. Parravano (Ref 39). There are 40 references, 5 of which are Soviet.

Card 2/2

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77283 SOV/63-4-6-17/37

AUTHOR:

Fioshin, M. Ya.

TITLE:

Second All-Union Conference on Organic Electrochemistry

PERIODICAL:

Khimicheskaya nauka i promyshlennost', 1959, Vol 4,

Nr 6, pp 790-793 (USSR)

ABSTRACT:

The conference was organized by the Section of Electrochemistry of D. I. Mendeleyev All-Union Chemical Society and Institute of Electrochemistry of the Academy of Sciences of the USSR, and it was held in Moscow in June 1959. More than 100 representatives

from 41 scientific organizations were present. Academician A. N. Frumkin in his introductory speech stressed the importance of organic electrochemistry and indicated the need for new preparative methods and study of the mechanism of electrode processes. The following reports were presented: V. G. Khomyakov and A. P. Tomilov (Moscow), application of the electrolysis of organic compounds in industry; V. N. Nikulin (Kazan'), the effect of crystalline structure of electrodes on electroreduction of

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Second All-Union Conference on Organic Electrochemistry

77283 SOV/63-4-6-17/37

some organic acids; M. S. Petrova (Moscow), electrochemical synthesis of labelled organic preparations; O. S. Ksenzhek and V. V. Stender (Dnepropetrovsk), the use of hollow electrodes in organic synthesis; N. G. Bakhchisarayts'yan, M. Ya. Fioshin, S. S. Kruglikov, L. I. Kazakova, and E. A. Dzhafarov (Moscow), electrochemical preparation of insoluble anode from lead dioxide and the use of this electrode for organic electrosynthesis; S. L. Varshavskiy, A. P. Tomilov, and L. V. Kaabak (Moscow), electrochemical synthesis of adipodinitrile; V. G. Khomyakov, D. Ya. Gusakova, K. V. Krivolutskiy (Moscow), M. V. Khrulev, Sh. S. Shchegol', L. G. Galkin, A. G. Artem'yev (Dzerzhinsk), electrochemical reduction of adipodinitrile in hexamethylenediamine; V. G. Khomyakov, M. Ya. Fioshin, I. A. Avrutskaya, and I. V. Chvankin (Moscow), electroreduction of nitrocyclohexane; A. I. Fedorova, I. V. Shelepin, and N. B. Moiseyeva (Moscow), initiation of the polymerization of methyl methacrylate in acid solutions on mercury cathode; S. S. Kruglikov, V. G. Khomyakov, and L. I. Kazakova (Moscow), electrochemical

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Second All-Union Conference on Organic Electrochemistry

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oxidation of pyridine bases; V. A. Smirnov and M. G. Smirnova (Novocherkassk), the use of amalgams for reduction of organic compounds; A. A. Ponamarev and I. A. Markushina (Saratov), electrolytic aloxylation of furan compounds; N. Ye. Khomutov, T. N. Filippova, A. M. Aboimov, I. V. Kasatonova, and G. Zhukova (Moscow), electrolysis of the aqueous solutions of m-nitrobenzenesulfonic acid and its sodium salt; N. Ye. Khomutov, Z. Khaschi, and L. I. Yurkov (Moscow), electrolysis of aniline solutions; N. Ye. Khomutov and M. G. Khachaturyan (Moscow), electrolysis of potassium acetate; I. I. Aryamova (Moscow), the effect of stirring on the rate of electrochemical oxidation and reduction of organic substances; S. B. Averbukh and A. M. Skundin (Moscow), electrochemical oxidation of phenoxyethanol into phenoxyacetic acid; G. P. Khomchenko, L. Ya. Krasnikova, A. I. Pletyushkina, T. M. Rzhishcheva, V. M. Tsintsevich, G. D. Vovchenko (Moscow), investigation of the hydrogenation and adsorption of organic substances on platinum and rhodium electrodes; M. Ye. Manzheley

Card 3/4

Second All-Union Conference on Organic Electrochemistry

77283 SOV/63-4-6-17/37

(Kishinev), the mechanism of the electrochemical reduction of unsaturated organic compounds; S. G. Mayranovskiy and L. D. Bergel'son (Moscow), the effect of the geometrical isomerism of organic compounds on their polarographic behavior; V. D. Bezuglyy (Khar'kov), utilization of polarography for investigation of the state of some substances in solution; Yu. P. Kitayev (Kazan'), polarographic study of the tautomerism and geometric isomerism of some semiand thiosemicarbazones; and Ya. Stradyn' (Riga), application of the Hammet equation for polarographic reduction of nitro compounds. Altogether, 25 reports were presented.

Card 4/4

5 (1,3) AUTHORS: 4

Kamneva, A. I., <u>Floshin, M. Ya.</u>, Yefimenkova, A. I., Vasil'yev, Yu. B., BOV/20-126-1-24/62

Muzychenko, L. A.

TITLE:

Investigation of the Process of Electrochemical Condensation of the Mono-2-ethyl-hexyl-ester of Adipic Acid (Izucheniye protsessa elektrokhimicheskoy kondensatsii mono-2-etilgeksilo-

vogo efira adipinovoy kisloty)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 1, pp 90 - 92

(USSR)

ABSTRACT:

The demand for high-molecular dicarboxylic acids and their esters rose. The process mentioned in the title is therefore theoretically as well as practically interesting. It proceeds on the anode in the case of the electrolysis of the monoester--salt-solution in the aqueous and nonaqueous electrolyte (Ref 1). The authors obtained in this investigation for the first time the sebacic acid-di-2-ethyl-hexyl-ester by electrosynthesis which is used as the main component of high-quality lubricants. Nonaqueous electrolytes are scarcely suitable for the mentioned purpose. The authors used therefore an aqueous electrolyte of the following composition: 300-400 g/l of the ester

Card 1/3

Investigation of the Process of Electrochemical Condensation of the Mono-2-ethyl-hexyl-ester of Adipic Acid

SOV/20-126-1-24/62

mentioned in the title, 30-50 g/l K_2 CO₃ and 600-700 ml/water. Anode and cathode were of platinum. No diaphragm was used. Temperature 20-30°. The current density fluctuated at the anode between 10 and 60 a/dm2. The yield of the main product: the sebacio acid-di-2-ethyl-hexyl-ester did not change with the current density. It amounted to 55% of the theoretical one. An intensive foam formation reduces the electrolyte considerably. This was eliminated by the isolating extraction with diethyl--ether. Finally the processes possible on the anode are discussed by means of the reactions (1) - (10). The hydrogen-superoxide theory of the electrosynthesis of Kolbe which was developed in most recent time by Glesstone (Ref 5) was in this case not confirmed (in line with Ref 6). Although the electrochemical condensation of the monoesters of dicarboxylic acids is to a certain extent similar to the electrosynthesis of Kolbe, the first mentioned one is a much more complicated process. The rules which govern the most simple case of an electrolysis of

Card 2/3

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Investigation of the Process of Electrochemical Condensation of the Mono-2-ethyl-hexyl-ester of Adipic Acid

307/20-126-1-24/62

the monobasic carboxylic acids must therefore not hold in the case of the first mentioned process. There are 6 references, 1 of which is Soviet.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskiy institut im. D. I.

Mendeleyeva (Moscow Institute of Chemical Technology imeni

D. I. Mendeleyev)

PRESENTED: February 21, 1959, by A. N. Frumkin, Academician

SUBMITTED: February 17, 1959

Card 3/3

S/153/60/003/003/018/036/XX B016/B058

AUTHORS:

Fioshin, M. Ya., Khazova, O. A.

TITLE:

Study of the Anodic Process at the Electrolysis of Mixtures From Sulfuric Acid and Acetic Acid. I. Study of the Kinetics Dependence of the Anodic Process on the Composition of the Mixtures From Sulfuric Acid and

Acetic Acid

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1960, Vol. 3, No. 3,

pp. 443 - 446

TEXT: The authors report on their study of the anodic reaction at the d.c. electrolysis of a mixture from anhydrous sulfuric acid and acetic acid (H₂SO₄ and CH₃COOH). They presumed the existence of solvents in

these systems and studied their influence on the kinetics of the anodic process. The method of the curves of polarization was used therefore. The electrolytic cell represented an H-type vessel; in which the cathode

Card 1/3

s/153/60/003/003/018/036/XX Study of the Anodic Process at the Electrolysis of Mixtures From Sulfuric B016/B058 Acid and Acetic Acid. I. Study of the Kinetics Dependence of the Anodic Process on the Composition of the Mixtures From Sulfuric Acid and Acetic Acid and anode space were separated by a cock. The anode consisted of carefully polished platinum, its design corresponding to that by N. A. Izgaryshev and Ye. A. Yefimov (Ref. 9). A sulfate electrode Hg | Hg 2SO4, filled with saturated Na2SO4 solution, served as reference electrode. The curves of polarization (Fig.1) determined by the author covered a concentration range of H2SO4 in the mixture from 20 to 100 mole% and were recorded for 13 compositions within this range. On the basis of these results the authors state in conclusion that the equation by Tafel is valid in the investigated system during the electrolysis for a wide concentration range at current densities between 2.22.10 5 and 2.22.10 3 a/cm2. The curve of the dependence of the coefficient b (in the equation by Tafel b = $\frac{d \varphi_a}{d \log I_a}$, φ_a being the anode

Card 2/3

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Study of the Anodic Process at the S/153/60/003/003/018/036/XX Electrolysis of Mixtures From Sulfuric Acid and Acetic Acid. I. Study of the Kinetics Dependence of the Anodic B016/B058 Process on the Composition of the Mixtures From Sulfuric Acid and

potential and Ia the current density) on the composition of the solution shows a distinct break at the point corresponding to the equivalent compound CH_COOH·H2SO4 (Fig.2). The authors take this as proof for the as~ sumption that the kinetics of the anodic process is influenced by solvents. They mention the papers by M. Usanovich and collaborators (Refs. 4-7). There are 2 figures and 11 references: 7 Soviet, 2 US, and

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskiy institut im. D. I. Mendeleyeva; Kafedra tekhnologii elektrokhimicheskikh proizvodstv (Moscow Institute of Chemical Technology imeni D. I. Mendeleyev; Chair of Technology of the Electrochemical Plants)

SUBMITTED:

October 20, 1958

Card 3/3

FIOSHIN, M.Ya.; KHAZOVA, O.A.

Anodic process in the electrolysis of mixtures of sulfuric and acetic acids. Part 1: Kinetics of the anodic process as a function of the composition of mixtures of sulfuric and acetic acids. Izv.vys.ucheb.zav.;khim. i khim.tekh. 3 no.3:443-446 160. (MIRA 14:9)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni D.I. Mendeleyeva, kafedra tekhnologii elektrokhimicheskikh proizvodstv. (Sulfuric acid) (Acetic acid) (Electrolysis)

S/153/60/003/004/015/040/XX B020/B054

AUTHORS:

Fioshin, M. Ya., Khazova, C. A., Ignatiyeva, L. A.

TITLE:

Study of the Anode Process in the Electrolysis of Mixtures of Sulfuric and Acetic Acid. II. Effect of the Solution Composition on the Ratio of Components in the Mixture of

Anode Gases

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1960, Vol. 3, No. 4,

pp. 637 - 641

TEXT: The authors attempted to study the composition of gases liberated from the anode in the electrolysis of an anhydrous mixture of sulfuric and acetic acid, and their dependence on the composition of the solution. The gases liberated from the anode were analyzed by a BTM-2 (VTI-2) gas analyzer. The analytical method was based on a successive and selective absorption of the principal components of the gas mixture by various absorbents, and on a combustion of hot gases with subsequent analysis of the combustion products. The authors determined CO₂ by 33% KOH, the

Card 1/4

Study of the Anode Process in the S/153/60/003/004/015/040/XX Electrolysis of Mixtures of Sulfuric and B020/B054 Acetic Acid. II. Effect of the Solution Composition on the Ratio of Components in the Mixture of Anode Gases

unsaturated hydrocarbons by a KBr solution saturated with bromine vapors, O₂ by a basic pyrogallol solution, CO by a Cu₂O suspension in concentrated H₂SO₄ absorbed with β-naphthol, H₂ by combustion over CuO at 270-280°C, and the saturated hydrocarbons by combustion over CuO at 850-950°C. Sulfuric and acetic acid must be highly pure, and not contain any water. Electrolysis was conducted in a cylindrical glass vessel with a ground-in glass stopper, with fused-in electrodes, and a tube to draw off the gas. The anode used was a smooth platinum net with a surface of 63.5 cm². The anode space was separated from the cathode space by a ceramic diaphragm. The current source used was a storage battery with a voltage of 80 v. Electrolysis was conducted in an anhydrous H₂SO₄ - CH₃COOH mixture in an interval of 20-80 mole% of H₂SO₄. Ten different compositions (20, 25, 30, 33, 35, 45, 50, 55, 60, and 80% H₂SO₄) were analyzed. For each composition, the gas analysis was conducted at three current densities: 2.78·10⁻⁴, 5.5·10⁻⁴, and

Study of the Anode Process in the S/153/60/003/004/015/040/XX Electrolysis of Mixtures of Sulfuric and B020/B054 Acetic Acid. II. Effect of the Solution Composition on the Ratio of Components in the Mixture of Anode Gases $1.58 \cdot 10^{-3} \text{ a/cm}^2$, which corresponded to the lower, central, and upper part of the curve $\varphi_a = f(\log I_a)$. The change in the ethane- (Fig.1), carbon dioxide- (Fig.2), and oxygen content (Fig.3) in dependence on the solution composition was observed. The Kolbe synthesis proceeded in a mixture containing up to 50 mole% of H_2SO_4 at current densities of from $2.78 \cdot 10^{-4}$ to $1.58 \cdot 10^{-3}$ a/cm². Besides the Kolbe synthesis, an intensive oxidation of acetic acid to CO_2 and water is likely to proceed on the anode. At concentrations higher than 50 mole% of H_2SO_4 , this reaction proceeds jointly with the release of oxygen. The formation of solvates influences the composition of anode gases. In the diagram $CO_2 = f(CO_2)$, the points of solvate formation correspond to the maximum, in the diagram $CO_2 = f(CO_2)$ to the minimum. N. I. Dedusenko

(Ref.5) is mentioned. There are 3 figures and 10 references: 3 Soviet,

Card 3/4

Study of the Anode Process in the S/153/60/003/004/015/040/XX Electrolysis of Mixtures of Sulfuric and B020/B054 Acetic Acid. II. Effect of the Solution Composition on the Ratio of Components in the Mixture of Anode Gases

3 British, 3 German, and 1 Swiss.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskiy institut im.

D. I. Mendeleyeva, kafedra tekhnologii elektrokhimicheskikh proizvodstv (Moscow Institute of Chemical Technology imeni D. I. Mendeleyev. Department for the Technology of the

Electrochemical Industry)

SUBMITTED: October 20, 1958

Card 4/4

\$/064/60/000/005/002/009 S B015/B058

AUTHORS:

Fioshin, M. Ya., Kamneva, A. I.

TITLE:

Electrochemical Synthesis of Sebacic Acid and Its Diesters

PERIODICAL:

Khimicheskaya promyshlennost', 1960, No. 5, pp. 7 - 10

TEXT: Explanations and experimental results of the electrochemical synthesis of sebacic acid and its esters are given, experiments by the authors and data from publications being mentioned. The Brown-Walker reaction is mentioned in the introduction as well as the production of dimethyl sebacate carried out on this basis at Leuna (Germany) during World War II. The patent for the investigations conducted at Leuna, by Offe (1952) (Ref. 10), formulates that the yield of dimethyl sebacate strongly depends on the presence of free adipic acid. The authors of the paper under review ascertained that a maximum yield of 75% is obtained under the working conditions mentioned by Offe, while the yield increases to 80% when the concentration of the sodium methylate is reduced to 0.07 N. Since working with methanol shows some drawbacks, it was attempted to carry out the electrosynthesis of the diesters of sebacic acid in

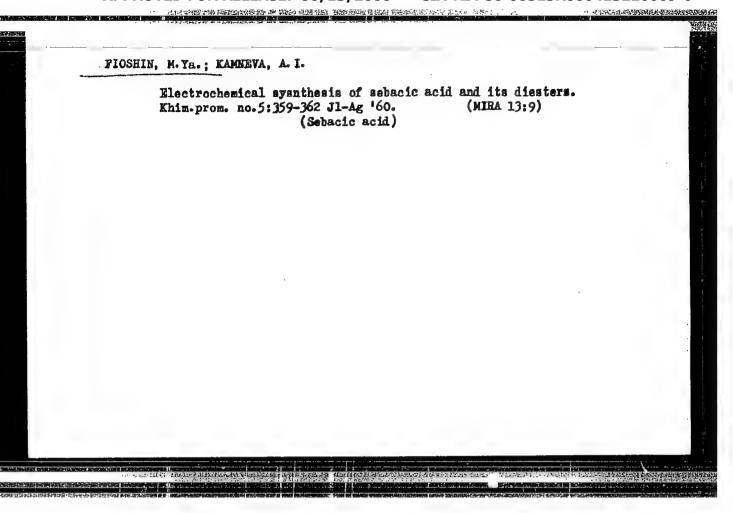
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Electrochemical Synthesis of Sebacic Acid S/064/60/000/005/002/009 and Its Diesters S/064/60/000/005/002/009

aqueous solutions. The electrolysis of the solutions of 200-400 g of mono-2-ethyl-hexyl adipate and 20-30 g of K₂CO₃ in 600-800 ml of H₂O proved to be an optimum with a current density of 1000-6000 a/m² at the anode and a temperature of 20-30°C. The yield of di-2-ethyl-hexyl sebacate amounts to 50-5%, i.e., considerably less than that from methanol solutions. The production of sebacic acid by electrolysis of a solution of butadiene and potassium monoethyl oxalate, or-maleate in methanol according to Lindsey and Peterson (Refs. 18,19) is of special interest. This reaction should still be studied and further developed for the purpose of increasing the yield, since the latter amounts only to about 15%. There are 19 references: 9 Soviet, 3 US, and 5 German.

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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000413220009-0



S/191/60/000/010/00;/017 B004/B060

AUTHORS:

Fioshin, M. Ya., Tomilov. A. P.

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TITLE:

Production of Polymers by Electrochemistry

PERIODICAL:

Plasticheskiye massy, 1960, No. 10, pp. 2-5

TEXT: This is a survey of Western literature and Western patents concerning the bringing about of polymerization by the electrolytical formation of free radicals. Western papers concerning the polymerization of styrene, acrylonitrile, methyl methacrylate, and particularly halogen olefins are discussed. As to the latter the advantage is pointed out that neither high pressure nor high temperature are required for polymerization by free radicals formed by electrolysis. The use of anhydrous solvents and high monomer concentrations is said to be promising. There are 20 references: 5 Soviet, 7 US, 2 British, and 6 German.

Card 1/1

AUTHORS:

Avrutskaya, I. A., Khomyakov, V. G.,

\$/076/60/034/03/034/038 B005/B016

Fioshin, M. Ya.

TITLE:

Reduction of Mitrocyclohexane on the Dropping Mercury Cathode

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol 34, Nr 3, pp 691-692 (USSR)

TEXT: In connection with the investigation of the electrochemical reduction of nitrocyclohexane the authors studied the reduction of this compound on a dropping mercury electrode. Measurements were carried out on PE-312 and M-103 polarographs. A saturated calomel electrode was used as an auxiliary electrode. As nitrocyclohexane is poorly soluble in water, 20% alcoholic solutions were investigated. The buffer mixtures used for the adjustment of various pH ranges are given. Figure 1 shows the polarogram of nitrocyclohexane in a solution of Na₂HPO_A and citric acid with pH 2.2. At pH 1 - 4 only one wave occurs which corresponds to the reduction of nitrocyclohexane to cyclohexyl hydroxylamine. At pH 5 - 7 a second wave appears in the polarogram, which does not occur in stronger acid solutions owing to hydrogen separation. The second wave has only about half the strength of that of the first wave; the acceptance of two electrons corresponds to it according to the Ilkovich equation. The second wave therefore corresponds to the reduction of cyclohexyl hydroxylamine to cyclo-

Card 1/3

Reduction of Mitrocyclohexane on the Dropping Mercury Cathode

S/076/60/034/03/034/038 B005/B016

hexylamine. At pH 9 - 11 again only the first wave appears. The second polarographic wave of nitrocyclohexane is thus stable only in a small pH range. At pH 11 - 12 the limiting current of the first wave begins to drop gradually, and in 0.1 N potassium hydroxide nitrocyclohexane is not reduced any longer on the dropping mercury electrode. This reduction of the diffusion current is obviously due to a tautomeric transition of the nitro compound occurring in molecular form in alkaline medium to the anionic form of a pseudo-acid, which is not reduced at the attainable potentials. In the electrochemical reduction of nitroeyclohexane on cathodes of platinum, copper, and lead in acid solutions the authors obtained cyclohexyl hydroxylamine as reaction product in a wide pH-range. The oxime of caprolactam could not be detected among the products. The reason for this phenomenon is the impossibility of stopping the reduction process at the stage of nitroso-cyclohexane from which the oxime of caprolactam results by rearrangement (Ref 3). The potentials at which nitroso-cyclohexane is reduced are less negative than in the case of nitrocyclohexane; it is therefore not concentrated in the solution, but is further reduced to give cyclohexyl hydroxylamine. The rate of this reduction is evidently higher than the rate of rearrangement, so that the wave of reduction to nitroso-cyclohexane does not

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Reduction of Nitrocyclohexane on the Dropping Mercury Cathode

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appear in the polarogram of nitrosyclohexane. Figure 2 shows the polarograms of nitrocyclohexane and cyclohexyl hydroxylamine at pH 6 in a solution of Na2HPO4 and citric acid. There are 2 figures and 3 references, 1 of which is Soviet.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskiy institut im. D. I. Mendeleyeva (Moscow Institute of Chemical Technology imeni D. I. Mendeleyev)

SUBMITTED:

July 31, 1959

Card 3/3

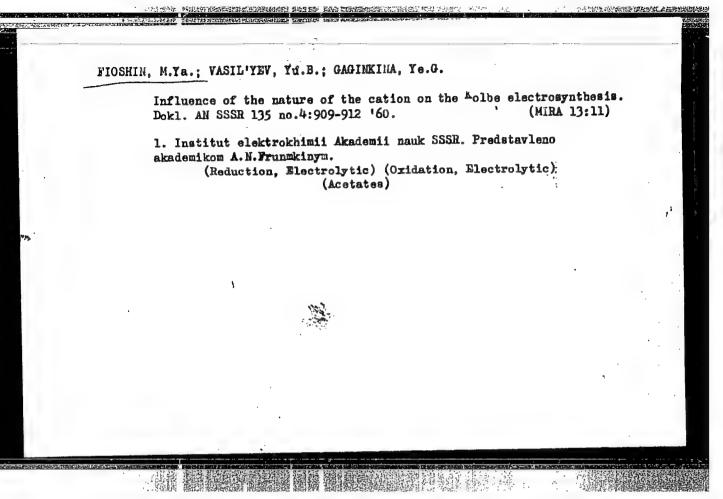
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"APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000413220009-0

FIOSHIN, M.Ya.; VASIL'YEV, Yu.B.

Anode processes in the electrolysis of salts of carboxylic acids.
Dokl.AN SSR 134 no.4:879-882 0 '60. (MIRA 13:9)

1. Institut elektrokhimii Akademii nauk SSSR. Predstavleno akad.
A.N. Frunkinym.
(Electrolysis) (Salts)



S/063/61/006/002/002/004 A105/A129

AUTHOR: Fioshin, M. Ya., Candidate of Technical Sciences

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TITLE: III All-Union Conference on the electrochemistry of organic com-

pounds

PERIODICAL: Zhurnal vsesoyuznogo khimicheskogo obschchestva im. D. I. Mendeley-

eva, 1961, v. 6, no. 2, 221 - 223

TEXT: The III Vsesoyuznove soveshchaniye po elektrokhimii organicheskikh soyedineniy (III All-Union Conference on the Electrochemistry of Organic Compounds) took place at the end of 1960 in Moscow and was convened by the department of electrochemistry of the VKhO im. D.I. Mendeleyev and the Institut elektrokhimii AN SSSR (Institute of Electrochemistry of AS USSR). 22 papers were presented concerning the polarography of organic compounds, the kinetics of electrode processes and electrochemical synthesis. Academician A. N. Frumkin dealt with the achievements of the electrochemistry of organic compounds and referred to the problems of this field. S. G. Mayranovskiy, (Moscow) read on the achievements of polarography of organic compounds, stating that this method is used both for analysis and investigation of the structure and reactivity of

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III All-Union Conference on the electrochemistry ..

organic compounds and the kinetics of their transformation. E. S. Levin (Moscow) discussed the kinetic features of the reduction of sulfoacids and the mechanism of the splitting-off of the sulfo-group. Ya. P. Stradyn' and S. A. Giller (Riga) read on the mechanism of the polarographic reduction of the nitro-group in the heterocycle. The deciding factor determining the reduction of the nitro-group is the polarity of the N > 0 bond. Yu. P. Kitayev and G. K. Budnikov (Kazan') reported on results of a study on the polarographic behavior of the semi-carbazones and thiosemicarbazones of certain aliphatic-aromatic ketones. They established that the semicarbazones and the thiosemicarbazones exhibit a great analogy in their behavior on a mercury drop electrode. They concluded that in polarographic reduction of the investigated substances saturation of the multiple bond of the azomethene group takes place. S. G. Mayranovskiy and L. I. Lishcheta (Moscow) read on the polarographic investigation of the kinetics of the interaction of the maleic acid diamion with the proton donors. G. A. Tedoradze and S. G. Mayranovskiy (Moscow) presented a paper on the results of an investigation of the electro-chemical behavior of the solutions of pyridine. It was shown that in the electrolysis of the pyridine solutions in addition to catalytic formation of hydrogen the reduction of pyridine also takes place with dimerization or polymerization of the obtained products. L. I. Antropov, V. A. Smirnov, M. G.

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S/063/61/006/002/002/004 A105/A129

III All-Union Conference on the electrochemistry...

Smirnova, V. D. Semchenko (Novocherkassk) reviewed the reduction process of carbon dioxide of sodium amalgam. . T. I. Kononchuk, O. V. Bogmat and R. V. Zhirova (Kiyev) presented a paper where sodium amalgam was used for the synthesis of sodium methylate, employed in the vitamin and perfume industries. N. M. Przhiyalgovskaya, L. N. Lavrishcheva, G. G. Mondodoyev and V. N. Belov (Moscow) reported on the amalgam reduction of isomeric naphthene carboxylic acids in an aqueous medium in the presence of boric acid. S. A. Giller and G. P. Sokolev presented data on the work of a large electrolyzer, in which electrolytic methoxylation of furanes was carried out. A 20 amp electrolyzer was designed, equipped with a spiral-type freezer. Ye. P. Starostenko and N. F. Starostenko (Moscow) discussed the new design of a mercury drcp electrode. The conditions of electrochemical synthesis of furyl alcohol by reduction of the corresponding aldehyde-furfurole were discussed by M. Ye. Manzheley and V. A. Ivanova (Kishenev). Hg, Sn, Cd. Zn, Cu were used as the materials for the gathodes. The latter author also spoke on the effect of the nature of the substitute on the kinetics of electro-reduction of nitro-benzene. S. V. Gorbachev (Moscow) reviewed the intensification of the electrolytic processes by means of conducting electrochemical reactions at high temperatures (up to 300°C). S. L. Varshavskiy, L. V. Kaabak and A. P. Tomilov (Moscow) reported on the electro-

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III All-Union Conference on the electrochemistry...

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reduction of α , β - saturated nitriles. The mechanism of hydrodimerization of acrylonitrile on a mercury cathode were discussed by L. G. Feoktistov and S. I. Zhdanov (Moscow). I. A. Mosevich, Zh. L. Vert and I. P. Tverdovskiy presented some information on the electrochemical reduction of maleic acid and m-nitrophenol on dispersed palladium-gold alloys. V. N. Nikulin (Kazan') reported on the electroreduction of fumaric and maleic acids in various planes of a silver monocrystal. A. V. Shashkina and I. I. Kulakova (Moscow) reviewed the processes of electroreduction of a number of organic compounds on a palladium-plated palladium electrode. M. Ya. Floshin and G. P. Girina (Moscow) discussed the anode process in electrolysis of methyl alcohol in an alkaline medium. The paper of Yu. B. Vasil'yev and M. Ya. Floshin dealt with the results of the study on anode processes in the electrolysis of the salts of carboxylic acids. Resolutions were adopted to further the development of the electrochemistry of organic compounds.

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AUTHORS:

Khomyakov, V.G., Fioshin, M.Ya., Avrutska, I.A., and

Shih-chi, Ye.

TITLE:

The electrochemical synthesis of cyclohexylhydroxyl-

amine

PERIODICAL:

Zhurnal prikladnoy khimii, v. 34, no. 12, 1961,

2788 - 2791

Cyclohexylhydroxylamine is not produced on an industrial TEXT: scale at present, but may serve as an intermediate product in the synthesis of materials for the plastics and lacquer-paint industries. The technological advantage of electrochemical synthesis is that it can be effected at ordinary temperatures and pressures. The present study is a follow-up of a previous report by the same team (Ref. 7: Tr. MKhTI, XXXII, 165, 1961) on the electrochemical reduction of nitrocyclohexane, in which cyclohexylhydroxylamine was formed as an intermediate product, the yield depending on the catalyte acidity and current density. The catalyte was a solution Card 1/2

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The electrochemical synthesis ...

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of nitrocyclohexane in 99 % methyl alcohol, acidified with up to 7 % H₂SO₄ or HCl. The current density was 7.5 A/dm² and nickel and lead cathodes were used. The catolyte temperature (20°C) and acid concentration were kept constant. On completion of electrolysis the methyl alcohol was distilled off and unreduced nitrocyclohexane removed. The solution obtained was brought to pH 11 - 12 and the precipitated cyclohexylhydroxylamine filtered off. The yield was independent of H2SO4 concentration, but rose considerably with an increase in HCl concentration to 4 %. The rise was much greater at the nickel cathode where a substance yield of 94 % and current yield of 77 % was obtained. This, the authors suggest, is due to the comparatively low hydrogen over-voltage on the nickel cathode which prevents reduction of cyclohexylhydroxylamine. On the lead cathode the hydrogen over-voltage is much greater, and as a result further reduction occurs to cyclohexylamine. There are 4 figures, table and 7 references: 6 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: J. Robertson, J. Org. Chem., 13, 3, 395, 1948. SUBMITTED: July 11, 1960

Card 2/2

FIOSHIN, M.Ya.; KAMNEVA, A.I.; MIRKIND, L.A.; SALMIN', L.A.

Additive electrochemical dimerization as a method of synthesizing dicarboxylic acids. Dokl.AN SSSR 138 no.1:173-176 ky-Je '61. (MIRA 14:4)

1. Moskowskiy khimiko-tekhnologicheskiy institut im. D.I.Mendeleyeva. (Polymerization)

(Acids, Organic) (Polymerization)

FIOSHIN, M.Ya.; GIRINA, G.P.; VASIL'YEV, Yu.B.; KHRULEV, M.V.; POLIYEVKTOV,

THE REAL PROPERTY OF THE PROPE

Additions of alcohols and their effect on Kobe's electrosynthesis.

Dokl. AN SSSR 140 no.6:1388-1391 0 '61. (MIRA 14:11)

1. Institut elektrokhimii AN SSSR. Predstavleno akademikom A.N. Frumkinym.
(Chemistry, Organic--Synthesis) (Electolysis)

